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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,320	02/22/2005	Marco Polverari	533-PCT/US	5346
26031	7590	01/30/2008	EXAMINER	
GEORGE J. PRIMAK 13480 HUNTINGTON MONTREAL, QC H8Z 1G2 CANADA			CORDRAY, DENNIS R	
			ART UNIT	PAPER NUMBER
			1791	
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			01/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/525,320	Applicant(s) POLVERARI ET AL.	
	Examiner Dennis Cordray	Art Unit 1791	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Examiner's Note***

The FAXed amendment received 11/20/2007 is of such visual quality as to be nearly unreadable. The responses, objections and rejections herein are based on interpretation of the amendment as far as it was readable.

### ***Response to Arguments***

Applicant's amendments and arguments, filed 11/20/2007, have been fully considered but have failed to overcome the outstanding rejections over the cited prior art.

Applicant argues on pp 5-7 that the Specification has been amended to recite a specific method for measuring viscosity as disclosed in U.S. Patent No. 5,480,934. However, as indicated below in the objection to the Specification, the amendment incorporates new matter into the Specification. Applicant further argues that, if the polymeric dispersions (presumably the claimed polymeric dispersions) are the same as those of U.S. Patent No. 5,489,934 (presumably intended to be 5,480,934), the same procedure was employed to measure their viscosities. Applicant also argues that measurement of viscosities of 1% dispersions is well known in the art and essentially the same results should be obtained using DIN, ASTM or other standards in the industry.

If measurements were made for the same polymers (molecular weight, structure, having undergone the same history of thermal and physical treatment, etc) under the same conditions of concentration in water, temperature and shear rate, essentially the

same results would be expected. However, except for the concentration in water, no measurement parameters are recited in the instant Specification or claims. Not having all of the industry standard methods to compare, the Examiner cannot determine their similarity to one another and declines to guess the particular measurement conditions used in the instant invention.

Applicant argues on p 6 and 7-9 that De Witt discloses low molecular weight polymers used in conjunction with a phenolic resin/PEO system, whereas Messner et al discloses high molecular weight polymers with no reference to their use with a phenolic resin/PEO system. Applicant further argues that a person skilled in the art would not conclude that the high molecular weight polymers of Messner would be suitable for use in lieu of the low molecular weight polymers of De Witt. Applicant also argues that the examiner of the PCT application, of which the instant application is the U.S. national phase, found that the "applicant's claims possess the attributes of novelty, inventive step and industrial applicability." The provided comments of the PCT examiner are similar to the arguments currently presented.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness.").

De Witt makes no mention of molecular weight of the cationic polymers used. In addition, the instant Specification fails to mention the molecular weight of the cationic

polymers used. No definitions of what is meant by "low molecular weight" and "high molecular weight" with respect to the polymers are given. Messner et al discloses that the polymers have a molecular weight of at least  $5 \times 10^{-5}$  Dalton (Abs), which is known in the art of retention and drainage systems for both low molecular weight and high molecular weight cationic polymers (see Begala, 5098520, col 3, lines 27-49, which recites a high molecular weight polymer having a molecular weight of at least 500,000, preferably above 1,000,000, and which may be above 5,000,000 or from 10 million to 30 million or higher. Also see Weir et al, US 2004/0149630, col 2, par 8, which teaches that low molecular weight cationic polymers having a molecular weight of less than 1 million are known in the art).

The rejections are maintained.

### ***Specification***

The amendment filed 11/20/2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment to the Specification recites that "These viscosities are measured according to DIN (German Industry Standard) 53018/53019 as indicated in U.S. Patent No. 5,480,934." The cited patent, while referenced in the original Specification, was not incorporated therein by reference, and the method of measurement of viscosity recited in the patent was not disclosed in the original Specification, thus is considered to be new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 3-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 6 recite "viscosities at 1% of said dispersion in water" but fail to recite any other conditions under which the viscosity is measured. Since viscosity is a function of at least temperature and frequently of shear rate, the claims do not provide sufficient information for one skilled in the art to assess their scope.

The remaining claims depend from and thus inherits the indefiniteness of Claims 1 or 6.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Witt (5516405) in view of Messner et al (5480934).

De Witt discloses a papermaking furnish comprising fillers; 0.01% to 1%, or 0.1 to 10 kg/ton based on the dry weight of the fibers, of a cationic polymeric fixative, and a

retention system of 40 to 300 g/ton of dry fibers of a polyethylene oxide and phenol-formaldehyde resin in a ratio of 1:1 to 3:1 phenol-formaldehyde resin to polyethylene oxide, or 0.12 to 0.9 kg/ton of dry fibers. (Abs; col 1, lines 39-67). The amounts of the cationic polymer, polyethylene oxide and phenolic resin added significantly overlay the claimed ranges, thus are present in the claimed ratios with one another. Suitable fillers include calcium carbonate, clay, titanium dioxide and silicates (col 2, lines 29-31).

De Witt discloses a method of improving retention in a papermaking slurry comprising adding the cationic polymeric fixative to the furnish between the machine chest and the last screens (last point of shear) (col 2, lines 38-41, Fig 3, items 12, 12A and 12B). The phenol formaldehyde resin is added at the fan pump or before the screens (col 2, lines 51-53, also refer to Fig 3). The polyethylene oxide is added after the screening operations and before the slurry is applied to the forming wire (col 2, lines 54-56, Fig 3, item 14). Referring to Figure 3, De Witt discloses addition of the cationic polymer before or after the phenol formaldehyde resin when the phenol formaldehyde resin is added at the fan pump (Fig 3, items 12 and 12A), or at the same point of addition when the phenol formaldehyde resin is added before the screens (Fig 3, item 12A). The filler is normally added at the fan pump and the cationic polymer is normally added after the filler (col 2, lines 35-41), thus the filler is pretreated with the cationic polymer before the addition of polyethylene oxide.

De Witt does not disclose the use of a liquid, aqueous, solventless dispersion of a cationic polymer, without oil phase, having the claimed viscosity, charge density and solids content.

Messner et al discloses an aqueous, solventless dispersion of a cationic polymer, without oil phase for use as a flocculent or retention agent in a papermaking process. The absence of organic solvents or oil reduces the flammability, improves safe handling and provides for ecologically safe use of the polymer dispersion (Abs; col 1, lines 17-21; col 2, lines 40-66; col 9, lines 32-39). The polymers comprise from 70-99% of a water-soluble monomer (a1), which, in some embodiments, is a quaternary ammonium monomer, thus the polymers have the claimed cationic charge density (col 3, lines 1-2; col 4, lines 1-3 and 24-56). The viscosity of a 1% aqueous dispersion of the polymer is within the claimed range (col 10, line 14 to col 11, line 57; Examples 1-5). The solids content of the polymer dispersion made in Example 1 (col 10, lines 15-34), prior to dilution with water to 1% solids for measurement of viscosity, is calculated to be about 33-34%, which overlays the claimed range.

The art of De Witt, Messner et al and the instant invention is analogous as pertaining to cationic polymers used as retention aids in papermaking slurries. It would have been obvious at the time of the invention to one of ordinary skill in the art to use an aqueous dispersion of a cationic polymer having no organic solvent as the cationic



polymer in the process of De Witt in view of Messner et al to provide for safer operation by use of a polymer additive with lower flammability and for ecologically safe use.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Witt in view of Messner et al and further in view of Fallon (571380).

De Witt and Messner et al do not disclose adding a cationic polymer after the polyethylene oxide and phenol-formaldehyde resin and after the last point of shear.

Fallon discloses a process of improving retention in a papermaking slurry comprising adding a cationic polymer to the slurry as a single retention aid after the last point of high shear and before formation of the paper to achieve a balance of retention and formation (Abs; col 4, line 61 to col 5, line 8). The polymer has a charge density of at least 3.2 or 3.5 equivalents per kg, which corresponds to a charge density of slightly less than 50 mole percent (col 3, line 63 to col 4, line 11).

"It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). Since the combination of polyethylene oxide and phenol-formaldehyde resin along with a cationic fixing agent, and a cationic polymer added after the last shear stage have both been taught in prior art to increase retention, it would have been obvious to one of ordinary skill in the art to combine the two processes and to add a cationic polymer after the last point of high shear absent

evidence showing unexpected advantages derived therefrom. Adding the cationic polymer after the polyethylene oxide would also have been obvious as a functionally equivalent option.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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DRC

  
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